FIG 2018 ISTANBUL

Presented at the FIG Congress 2018, May 6-11, 2018 in Istanbul, Turkey

XXVI FIG Congress 2018

6–11 May 2018

ISTANBUL

Introducing the Latest Version of the Global Elevation Testing Facility (GEDTF)

ORGANISED BY FIG

MAIN SUPPORTERS T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI, Tapu ve Kadastro

PLATINUM SPONSORS esri THE SCIENCE OF WHERE, Leica Geosystems, Trimble

FIG 2018 ISTANBUL
XXVI FIG Congress 2018
6-11 May 2018 ISTANBUL
EMBRACING OUR SMART WORLD WHERE THE CONTINENTS CONNECT:
ENHANCING THE GEOSPATIAL MATURITY OF SOCIETIES

Introducing the Latest Version of the Global Elevation Testing Facility (GEDTF) (9559)

Kazimierz Becek

Geomatics Department

Bulent Ecevit University, Zonguldak, Turkey

And

Faculty of Geoengineering, Mining and Geology

Wroclaw University of Science and Technology, Poland

ORGANISED BY FIG

MAIN SUPPORTERS T.C. ÇEVRE VE ŞEHİRCİLİK BAKANLIĞI, Tapu ve Kadastro

PLATINUM SPONSORS esri THE SCIENCE OF WHERE, Leica Geosystems, Trimble

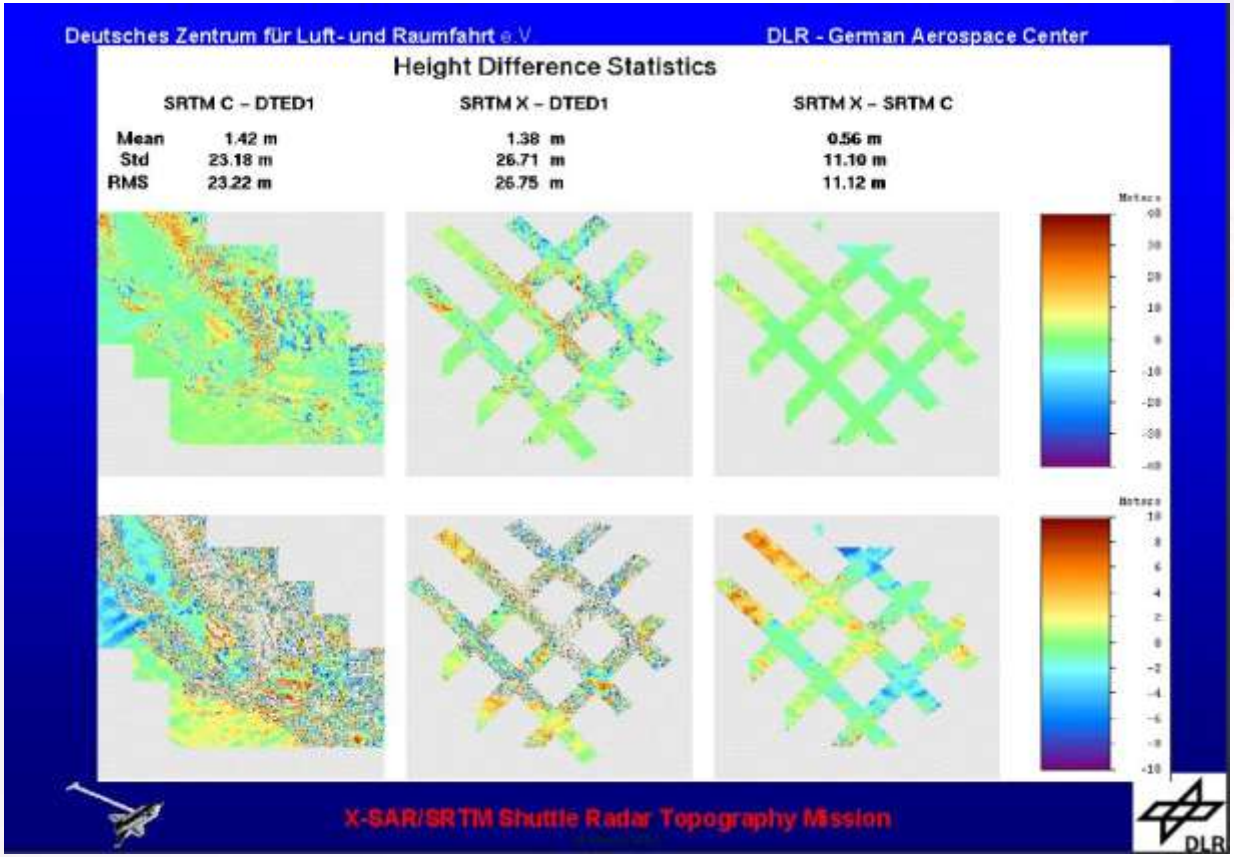
How is the accuracy of a DEM assessed?

Usually by showing an array of discrepancies:

d = assessed DEM – reference DEM,

and some numbers such as min/max(d), mean(d), STD(d) and a histogram

But this approach is dependent on the type of terrain:
Different results will be achieved over different types of terrain even if the same method for establishing height is used. So, really this is not a perfect way to assess the accuracy of a DEM!



A typical visualization of an accuracy assessment of a DEM

Other method: Pixel-based assessment

[Becek, 2008, *GRL*, doi:10.1029/2008GL034592]

$$\sigma^2_{DEM} = \sigma^2_I + \sigma^2_T + \sigma^2_E$$

Term 1 is the instrument dependant component. The component may or may not be known;
Term 2 is the Target-induced component;
Term 3 is the environment dependant component.

Variance of the Target-induced error can be estimated:

$$\sigma_T^2 = \frac{d^2 tg^2(s)}{12}$$

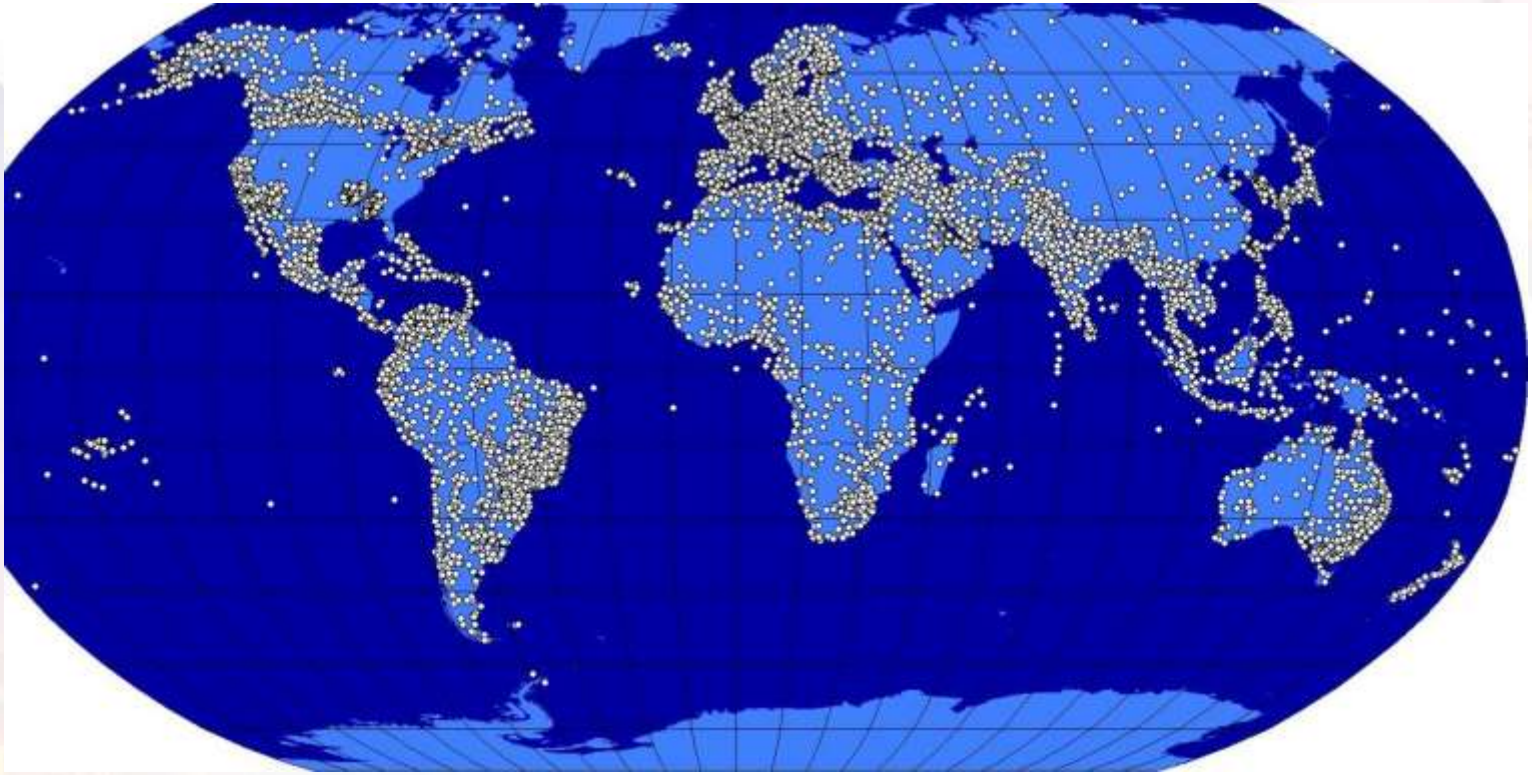
where *d* is the pixel size. In the case of a topographic map *d* is equivalent to the contour interval. For example: for *d* = 1m σ= 0.29m

Variance of the Target-induced error can be estimated:

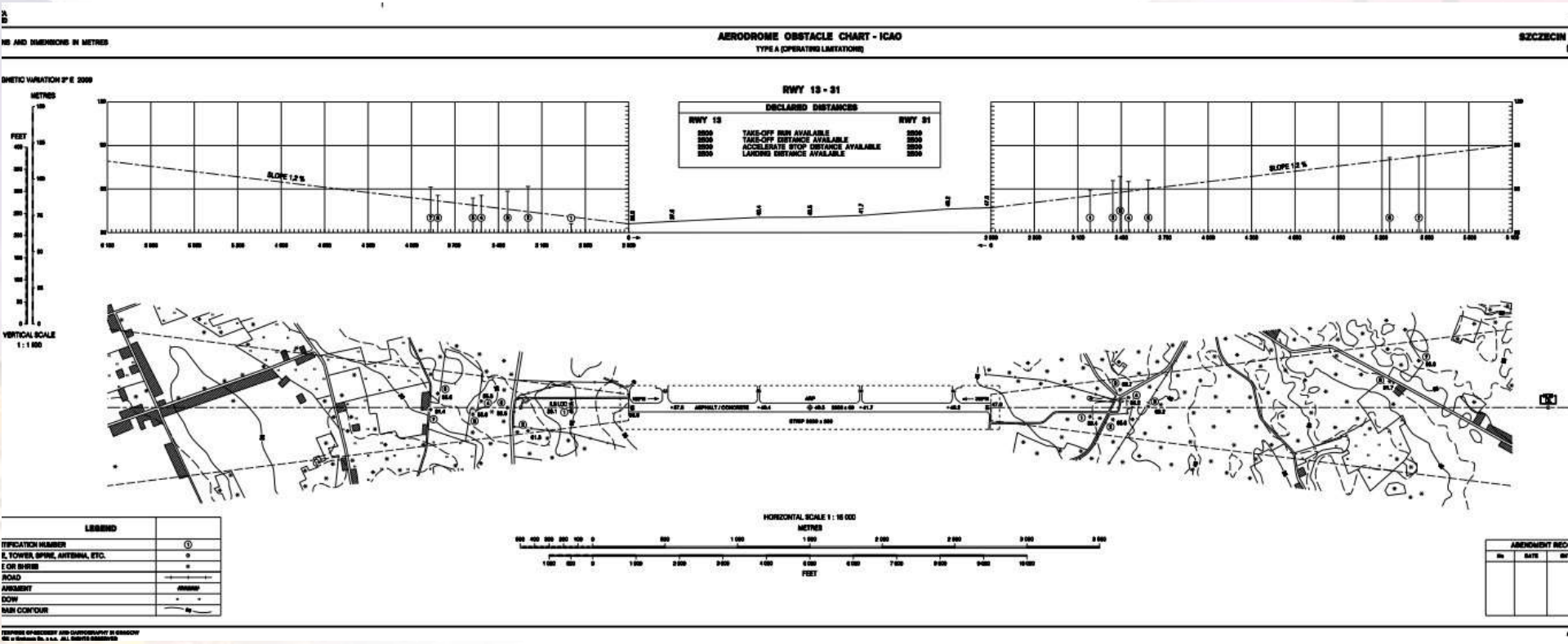
$$\sigma_T^2 = \frac{d^2 tg^2(s)}{12}$$

where *d* is the pixel size. In the case of a topographic map *d* is equivalent to the contour interval. For example: for *d* = 1m σ= 0.29m

Some of the world's airports:



Runway at EPSC – Szczecin, Goleniów, Poland



Runway at EPSC – Szczecin, Goleniów, Poland

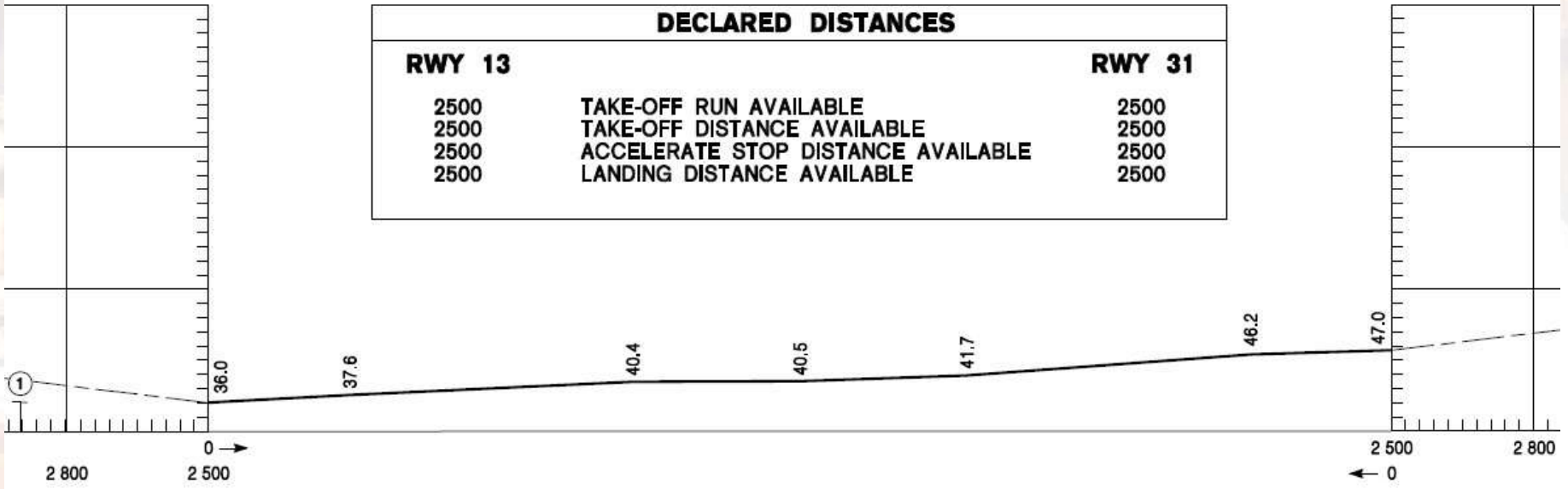
AERODROME OBSTACLE CHART - ICAO

TYPE A (OPERATING LIMITATIONS)

RWY 13 - 31

DECLARED DISTANCES

RWY 13		RWY 31
2500	TAKE-OFF RUN AVAILABLE	2500
2500	TAKE-OFF DISTANCE AVAILABLE	2500
2500	ACCELERATE STOP DISTANCE AVAILABLE	2500
2500	LANDING DISTANCE AVAILABLE	2500



GLOBAL ELEVATION DATA TESTING FACILITY

GEDTF

Thu, 23 Jan 2014, 09:43

[Home] ------ [Database] ------ [Case Study] ------ [References] ------ [Contributions & Donations] ------ [About]

News:

+ Attend the presentatin of the GEDTF at the XXIV FIG 2010 Congress in Sydney, Australia. more

+ The Brunei International GNSS Service station (BIGSS) is coming soon more

+ Masters program in Radar Remote Sensing (RRS), GNSS & GIS will be available soon @ UBD more

Links:

- Asia Surveying & Mapping Magazine
- ASTER
- GLAS
- InSAR
- SPOT
- SRTM.C
- SRTM.X

The Database

The data for the GEDTF were compiled from various sources. A majority of the runway records were extracted from the Google™ Earth. The data have been verified using the World Aeronautical Database , AirNav.com and other sites. Although all care was exercised, we cannot accept any responsibility for any errors or omissions found in the GEDTF. See the Legal Stuff for more details.

The structure of a record includes:

- Region of the world (as per SRTM classification).
- Country.
- Airport name.
- Runway number.
- Latitude and longitude (WGS 84) of both ends of runway (decimal degree).
- Elevations of both ends of runway (m) above mean sea level.
- Length and Width of the runway (m).
- Type of surface material (Asphalt, concrete, turf, etc).
- Other suitable features (under development).

The data querying mechanism allows extracting records within a 5° by 5° tile.

Enter coordinates (decimal degrees) of the centre of your area of interest (AOI) in the space below.
Click 'Check' to find the number of runways withing the AOI.
Click 'Download' to get the data for the AOI.

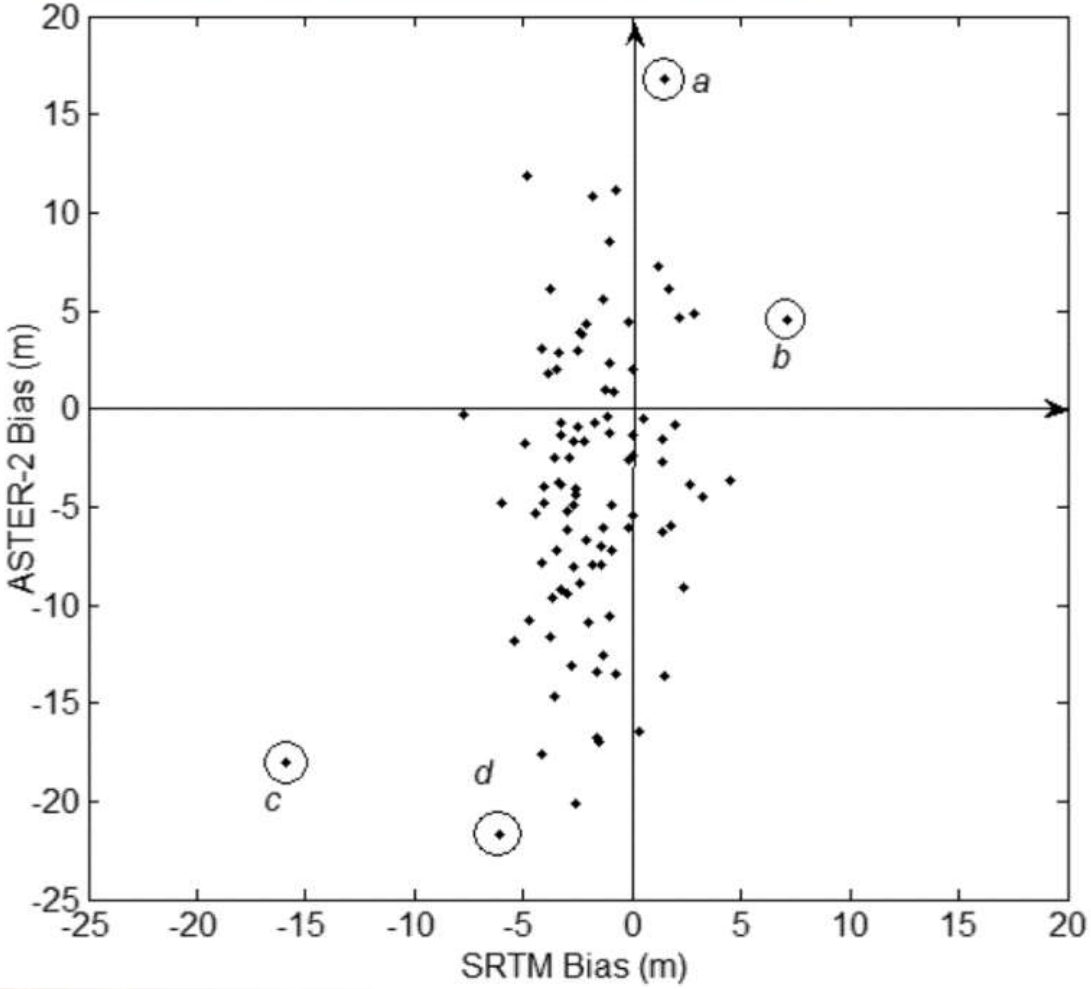
Longitude:

Latitude:

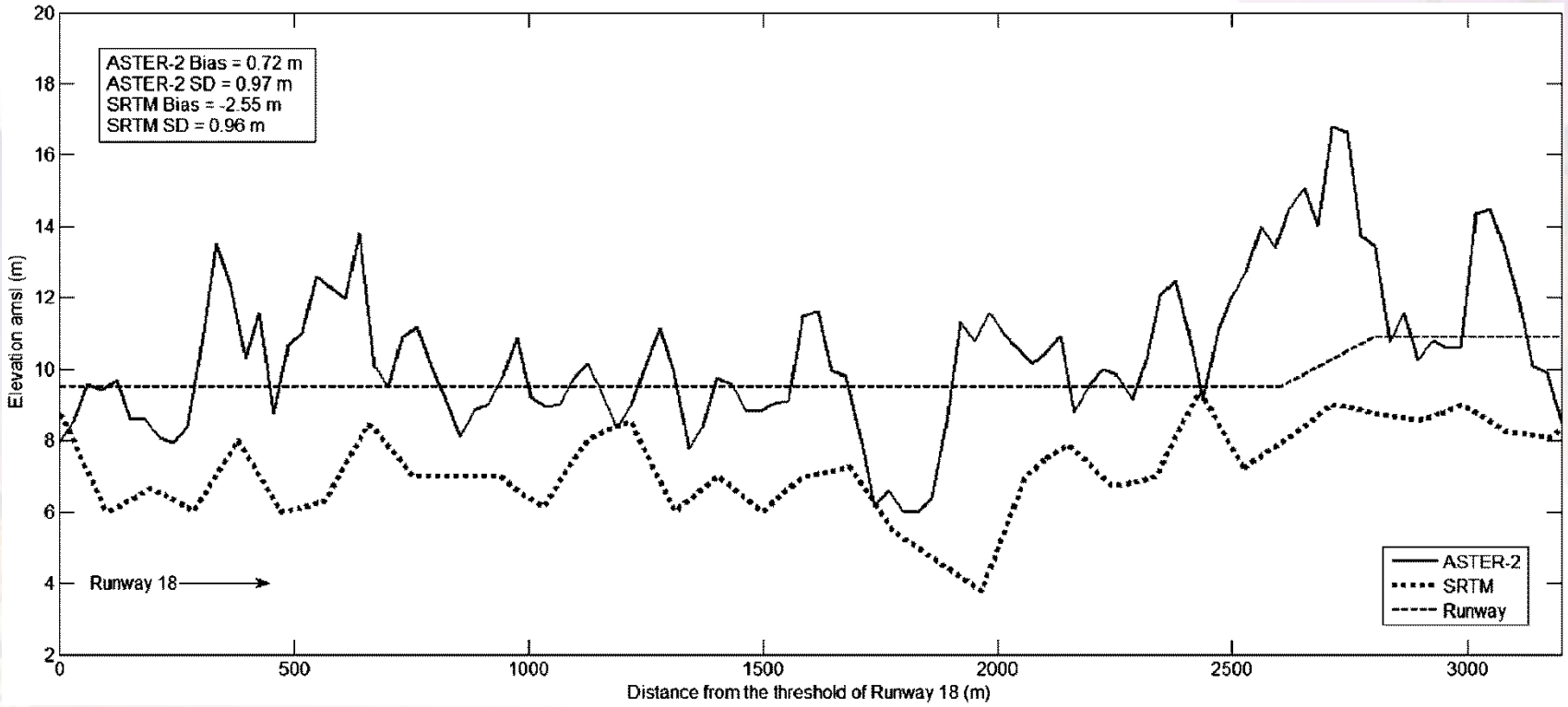
Check Download

www.gedtf.org

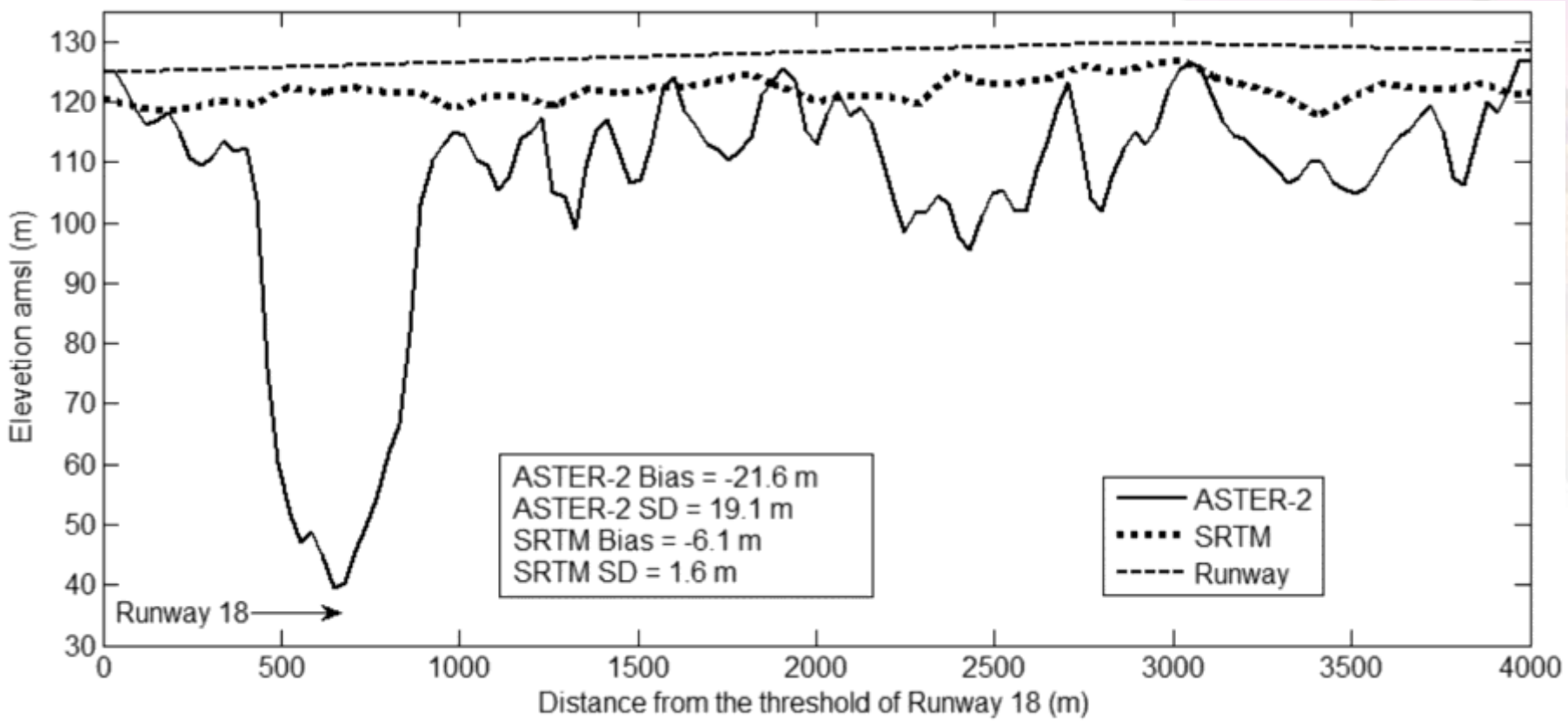
ASTER-2 vs. SRTM



ASTER-2 a SRTM

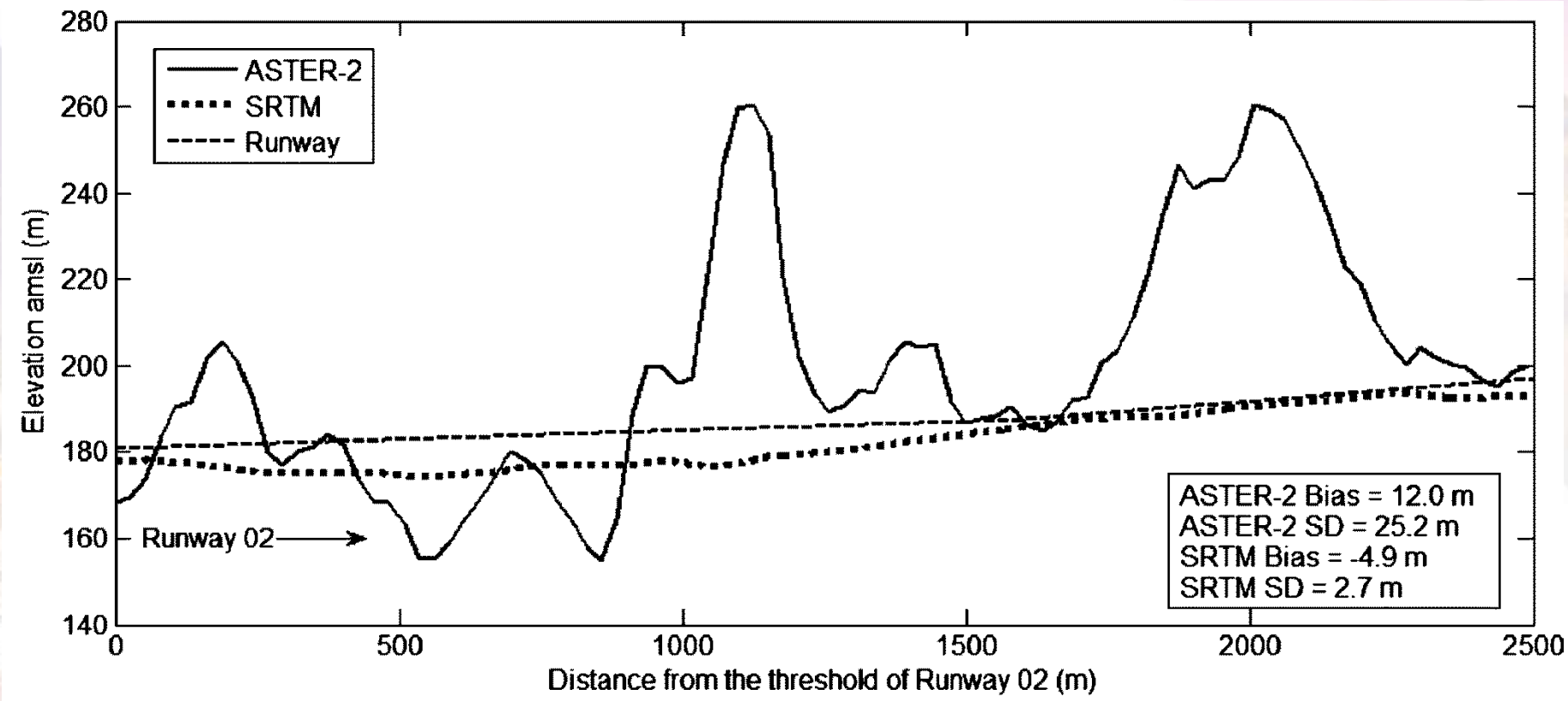


ASTER-2 vs. SRTM



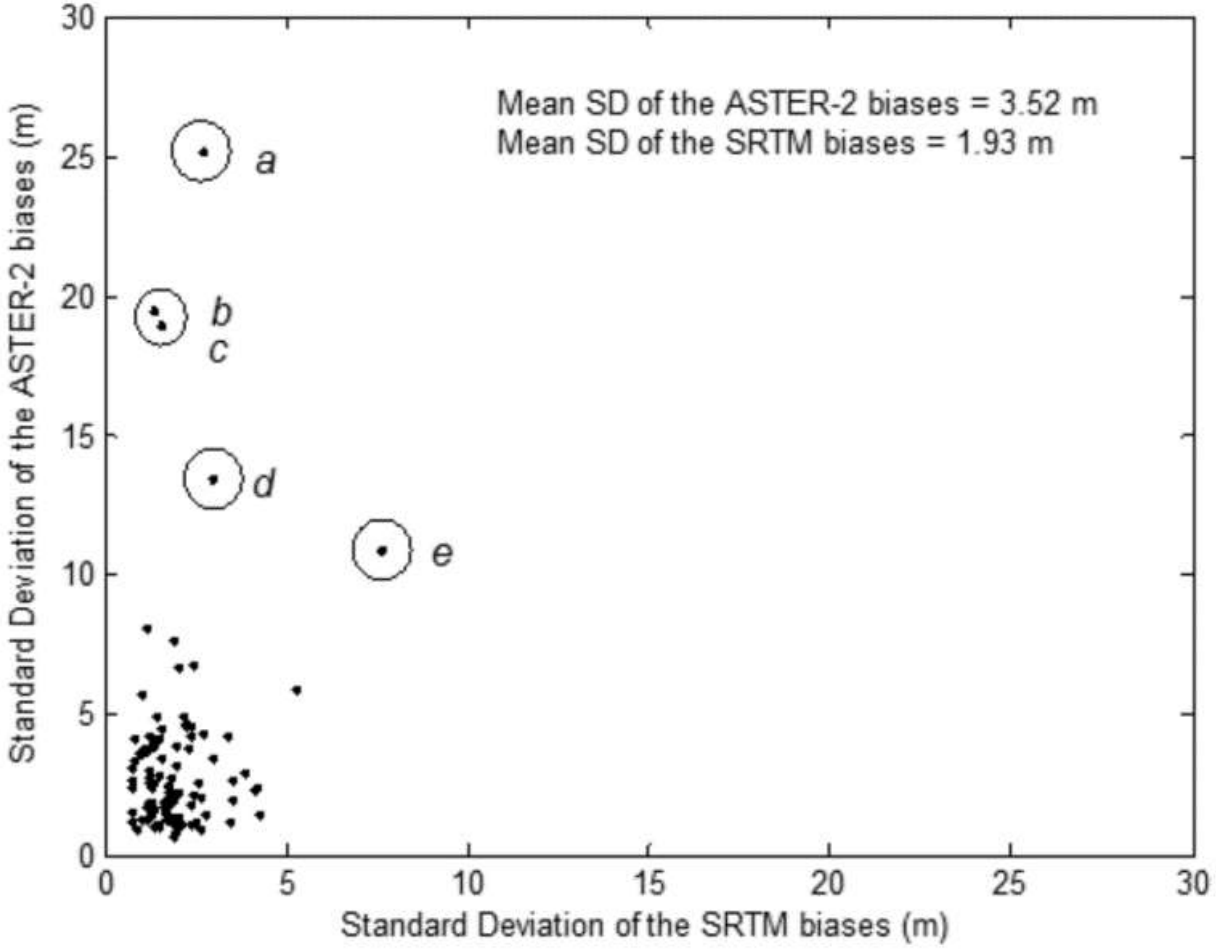
ASTER-2 a SRTM

ASTER-2 vs. SRTM



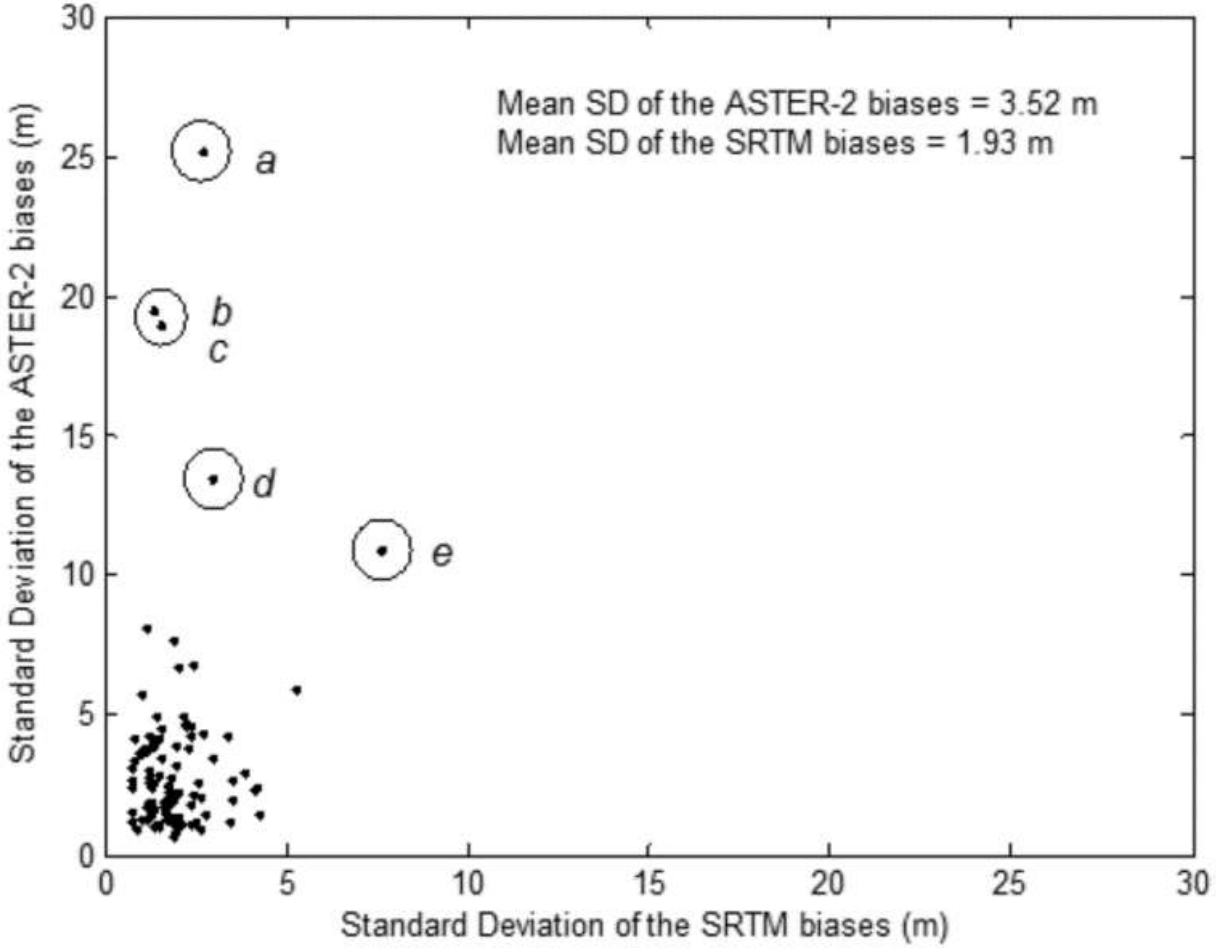
ASTER-2 a SRTM

ASTER-2 vs. SRTM



ASTER-2 a SRTM

ASTER-2 vs. SRTM



Global Elevation Data Testing Facility

Main page • Get Data • About • Back to Previous Page

Runways by country

country	RWY's
Afghanistan	25
Albania	4
Algeria	74
American Samoa	4
Andorra	0

Global Elevation Data Testing Facility

Main page • Get Data • About • Back to Previous Page

Runways in Australia

city	ICAO	IATA	airport	runway	dimensions
Albany	YABA	ALH	Albany Airport	RWY 5	1096x30
Albany	YABA	ALH	Albany Airport	RWY 14	1800x30
Amberley	YAMB		Amberley Airport	RWY 4	1523x45
Amberley	YAMB		Amberley Airport	RWY 15	3047x45
Alpha	YAPH	ABH	Alpha Airport	RWY 18	1456x30
Ararat	YARA	ARY	Ararat Airport	RWY 12	1240x18
Argyle	YARG	GYL	Argyle Airport	RWY 1	2300x30
Armidale	YARM	ARM	Armidale Airport	RWY 5	1738x30
Armidale	YARM	ARM	Armidale Airport	RWY 9	1116x30
Aurukun	YAUR	AUU	Aurukun Airport	RWY 16	1262x30
Avalon	YAUR	AUU	Avalon Airport	RWY 18	3048x45

Global Elevation Data Testing Facility

Main page • Get Data • About • Back to Previous Page

Warsaw Chopin Airport RWY 11

Country		Poland
City		Warsaw
ICAO code		EPWA
IATA code		WAW
Airport		Warsaw Chopin Airport
Runway		11
Coordinates [Lat, Lon]	Start	52.171475, 20.946714
	End	52.162869, 20.977372
Lenght [m]		2800
Width [m]		50
Geoid undulation [m]		31.4
Surface		asphalt/concrete

Transversal profile

abscissa [m]	ordinata [m]
0	110.3
150	110.0
1 535	104.2
1 925	104.2
2 300	105.5
2 800	102.7

Get * csv data

Thank you

Nepenthes L.